

EXHIBIT 5

Green, Warren

From: Green, Warren
Sent: Friday, December 06, 2013 2:05 PM
To: Daugherty Johnson
Cc: Matta, Samir
Subject: Fwd: Flint Treatment Cost
Attachments: FWP Cost.pdf; ATT00001.htm; image001.gif; ATT00002.htm

Duffy

The info you requested is attached. This is partly based on chemical supplier quotes, costs from other utilities and from some historical data from City of Flint cost. Please let me know if you have any question.

Warren

J. Warren Green

Begin forwarded message:

From: "Green, Warren" <jwgreen@lan-inc.com>
To: "Tom Beckley" <tbeckley@raftelis.com>
Subject: Flint Treatment Cost

Per our discussion.

J. Warren Green, PE
Director of Engineering

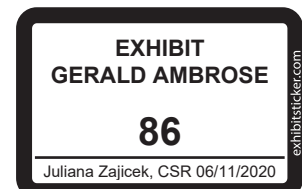
[cid:image001.gif@01CEF0D5.269803C0]

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Unit Costs - Flint River w/Partial Softening

2013\$

Power - Pumping

Flow (MGD)	1
TDH (ft) - High	185
TDH (ft) - Filter Transfer	40
TDH (ft) - Low	40
TDH Total (ft)	265
Pump Eff. (W to W)	85.00%
\$/kwhr	\$0.075

Power Cost Per MGD = \$98.49

Chemical

	Dose(mg/l)	Cost/#	Cost/ MGD
Ferric	44.50	\$0.24	\$89.07
Softening Polymer	1.00	\$1.55	\$12.93
Lime	93.00	\$0.10	\$77.56
CO ₂	37.00	\$0.10	\$30.86
Cl ₂	3.00	\$0.34	\$8.51
Fluoride	1.00	\$0.33	\$2.75
Phosphate	1.00	\$0.51	\$4.25
	Cost per MGD		\$225.93

Ozone Cost for 2 mg/l \$40.61

Total Chemical Cost: \$266.54

Sludge disposal cost

If Bray Road Lagoon cannot be used, then

sludge disposal cost is \$44.67 per MGD

145 wet tons per week @ \$21.50/wet ton hauled

Based on 55% and unit wt of 95.6 #/cf

Unit Costs - Lake Huron

2013\$

Power - Pumping

Flow (MGD)	1
TDH (ft) - High	185
TDH (ft) - Filter Transfer	40
TDH Total (ft)	225
Pump Eff. (W to W)	85.00%
\$/kwhr	\$0.075

Power Cost Per MGD = \$83.62

Chemical

	Dose(mg/l)	Cost/#	Cost/ MGD
Ferric	25.00	\$0.30	\$62.55
Cl ₂	2.00	\$0.34	\$5.67
Fluoride	1.00	\$0.33	\$2.75
Phosphate	1.00	\$0.51	\$4.25
		Cost per MGD	\$75.23

Ozone Cost for 1 mg/l \$20.30

Total Chemical Cost: \$95.53